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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,202	07/29/2003	Joseph W. Hoff	84956NAB	1128

7590 06/01/2005

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EXAMINER	
CALEY, MICHAEL H	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/632,202	HOFF ET AL.	
	Examiner	Art Unit	
	Michael H. Caley	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 7-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *7/29/03* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 13, 14, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Saynor et al. (U.S. Patent No. 6,157,427 "Saynor").

Regarding claim 1, Saynor discloses a method for manufacturing an optical compensator on a transitional substrate (Figure 8) comprising:

applying a retardation layer (Figure 8 element 26) on the transitional substrate (Figure 8 element 10);

applying a first orientation layer (Figure 8 element 14) on the retardation layer;

aligning the first orientation layer (Column 4 lines 3-18); and

applying a first anisotropic liquid crystal material on the first orientation layer (Figure 8 element 16; Column 4 lines 19-21).

Regarding claim 2, Saynor discloses the transitional substrate as removed (Column 5 lines 50-60).

Regarding claims 13 and 14, Saynor discloses the first orientation layer and the first anisotropic liquid crystal material as applied by coating (Column 3 line 67 – Column 4 line 21).

Regarding claim 27, Saynor discloses a retardation layer on top of the anisotropic layer (Figure 8 element 16).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 4, 8-12, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saynor in view of Umeda et al. (U.S. Patent Application Publication 2003/0067572 "Umeda").

Regarding claims 3 and 4, Saynor fails to explicitly disclose a load average stress for the removal of the transitional substrate. Umeda, however, teaches a peeling tension of 9.8 N/m (Page 20 [0328]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a peeling tension as proposed for the substrate removal. One would have been motivated to use such a low peeling tension as taught by Umeda to maintain the uniform optical properties of the compensator. It is well known in the art that excessive stretching or compressive stress to an optical compensator layer can vary the optical properties of the layer.

Regarding claims 8 and 9, Saynor fails to explicitly disclose the thickness of the compensator. Umeda, however, teaches a range for the thickness as from 1 to 1000 microns (Page 13 [0231]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the compensator to have a thickness less than 30 micrometers. One would have been motivated to form the compensator with the proposed thickness as an engineering expediency to achieve a particular viewing angle characteristic to improve particular viewing angle properties within the disclosure of Umeda (Page 1 [0013-0014]).

Regarding claims 10 and 11, Saynor fails to disclose the retardation layer as having the proposed birefringence. Umeda, however, teaches a range of birefringence for a retardation layer on which an anisotropic liquid crystal layer is formed including the proposed ranges.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the retardation layer to have the proposed birefringence. One would have been motivated to form the retardation layer with the birefringence as an engineering expediency to achieve a particular viewing angle characteristic to improve particular viewing angle properties within the disclosure of Umeda (Page 1 [0013-0014]).

Regarding claim 12, Saynor fails to disclose the retardation layer as comprised of triacetyl cellulose. Umeda, however, teaches triacetyl cellulose as an advantageous material for a retardation layer on which an anisotropic liquid crystal layer is formed (Page 20 [0328]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the retardation layer disclosed by Saynor as a triacetyl cellulose film. One would have been motivated to form the film accordingly to benefit from the well known advantages of such a material over a liquid crystal compensation material such as a less expensive manufacturing process.

Regarding claim 15, Saynor fails to disclose a barrier layer applied between the retardation layer and the first orientation layer. Umeda, however, teaches such a layer (Page 25 [0375]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed a barrier layer between the retardation layer and the first orientation layer. One would have been motivated to form such a layer to prepare the retardation layer to be a proper support for the orientation layer (Page 25 [0375]).

Claims 6, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saynor in view of Akins (U.S. Patent No. 5,399,390).

Saynor fails to disclose the transitional substrate as polyethylene terephthalate or as extruded. Saynor, however, teaches the substrate as plastic. Akins further teaches an advantageous substrate for a liquid crystal display application formed of an extruded PET material (Column 3 lines 27-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the substrate as proposed. One would have been motivated to form the

substrate as a PET or extruded substrate for an additional birefringent effect of the compensator (Column 3 lines 27-40).

Claims 7, 16, 17, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saynor.

Regarding claim 7, Saynor fails to explicitly disclose the retardation layer as applied by coating. Saynor, however, teaches other layers of the same material as applied by coating (Column 4 lines 1-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the retardation layer by coating. One would have been motivated to apply the retardation layer accordingly to benefit from the advantages taught by Saynor, such as an ability to precisely control the birefringence of the layer while imparting alignment treatment to the surface of the layer to function as an alignment layer (Column 4 lines 10-18).

Regarding claim 16, Saynor fails to explicitly disclose the optical compensator as applied to a liquid crystal cell. Saynor, however, teaches an embodiment in which the optical compensator is formed as part of a liquid crystal display (Column 4 lines 19-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the compensator to a liquid crystal cell, such as for use in a display. One would have been motivated to use such a layer applied to a liquid crystal to benefit from improved display characteristics at wide viewing angles.

Regarding claim 17, Saynor fails to disclose the orientation layer as comprising polyvinyl cinnamate. The examiner takes Official notice that polyvinyl cinnamate is a commonly used material for constructing an orientation layer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used polyvinyl cinnamate as an orientation layer in the compensator disclosed by Saynor. One would have been motivated to use such a material for the orientation layer to benefit from the expected results of such a layer, such as a preferred aligning method.

Regarding claims 20 and 21, Saynor fails to disclose the anisotropic layer as discotic or calamitic liquid crystal. The examiner takes Official notice that both discotic and calamitic liquid crystals are commonly used materials for a liquid crystal compensator.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the anisotropic layer from a calamitic or discotic liquid crystal. One would have been motivated to use such a material for the anisotropic layer to benefit from the expected results of such a layer, such as a preferred viewing angle characteristic.

Claims 18, 19, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saynor in view of Chung et al. (U.S. Patent No. 5,995,184 "Chung").

Regarding claims 18 and 19, Saynor fails to disclose the orientation layer as oriented through photoalignment or rubbing. Chung, however, teaches photoalignment and rubbing each as acceptable methods for aligning an orientation layer (Column 6 line 50 – Column 7 line 6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have oriented the orientation layer disclosed by Saynor according to any of the proposed conventional methods. One would have been motivated to orient the layer according to a particular method as an engineering expediency to achieve a desired type of orientation, such as homeotropic or planar, more suited to a particular technique (Chung, Column 7 lines 4-6).

Regarding claim 22, Saynor fails to explicitly disclose the anisotropic liquid crystal material as polymerizable via actinic radiation. Chung, however, teaches such a technique as advantageous in achieving a fixed and permanent alignment of the liquid crystal (Column 7 lines 33-44).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the anisotropic liquid crystal material disclosed by Saynor to be polymerizable via actinic radiation as proposed. One would have been motivated to form the liquid crystal material accordingly to benefit from a fixed and permanent alignment of the liquid crystal layer as taught by Chung.

Claims 25, 26, and 28-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saynor in view of Chung and Koch et al. (U.S. Patent No. 5,619,352 "Koch") and Saynor.

Regarding claims 25 and 31, Saynor fails to disclose the steps of repeating the proposed steps to form a plurality of orientation layers and anisotropic layers to form an integral component wherein an optical axis of each anisotropic layer is positioned relative to respective

optical axis of the other anisotropic layers by an angle about an axis perpendicular to a plane of each of the substrates. Chung, however, teaches that the disclosed compensator (Figures 1 and 2) may be combined with other retardation films to provide compensator structures in the referenced disclosures (Column 7 lines 47-51, Column 1 lines 35-60). One such disclosure, Koch, teaches various compensator structures in which the "A-plate" and "O-plate" structures may be constructed using the advantageous techniques as disclosed by Chung (Figures 1 and 2 and Column 2 lines 46-57 of Chung; Figure 14, Column 9 Table I of Koch). Additionally, Saynor teaches methods in which compensators constructed by transitional substrates are combined (Figures 2-4, 6, 9, and 10; Column 5 lines 43-60).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the optical compensator to have a plurality of anisotropic layers and orientation layers as proposed. One would have been motivated to combine multiple compensators built on transitional substrates to construct a compensator as disclosed by Koch having improved contrast and grayscale stability over a wide field of view (Column 10 lines 29-59).

Regarding claims 26, 30, 32, and 33, Saynor fails to explicitly disclose the optical axes of the anisotropic layers as orthogonal and the step of removing the transitional substrates from the compound film. Koch, however, teaches an orthogonal relationship between the optical axes of anisotropic layers (Column 8 line 61 – Column 9 line 5). Saynor teaches removing the substrates from the compound film.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the layers to have an orthogonal relationship as proposed. Koch teaches the particular compensator as having improved contrast and grayscale stability over a wide field of view (Column 10 lines 29-59). One would have been motivated to construct the compensator accordingly to improve a displayed image of a liquid crystal display over a wide viewing angle.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have removed the transitional substrates from the compound film. One would have been motivated to remove the substrates to enable reuse of the substrates and to allow the film to be combined with other films, such as when combined in a manner to form a film as taught by Koch (Table I).

Regarding claims 28 and 29, Saynor fails to disclose the addition of a plurality of orientation layers and anisotropic layers. Koch, however, compensators constructed of multiple compensator layers (Table I), which would necessitate multiple orientation layers and anisotropic layers using the methods as described by Chung and Saynor.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the optical compensator to have a plurality of anisotropic layers and orientation layers as proposed. One would have been motivated to combine multiple compensators built on transitional substrates to construct a compensator as disclosed by Koch having improved contrast and grayscale stability over a wide field of view (Column 10 lines 29-59).

Response to Arguments

Applicant's arguments filed 3/14/05 have been fully considered but they are not persuasive.

Regarding the rejection of newly amended claim 1 as anticipated by Saynor, Applicant argues that Saynor fails to disclose the limitation "applying a retardation layer on the transitional substrate". Arguments state that because the alignment layer (12) is placed on the substrate (10) and the retardation layer (26) is placed on the alignment layer (12), that the retardation layer is therefore not placed on the transitional substrate.

The examiner disagrees with this conclusion and maintains the rejection. The limitation "applying a retardation layer on the transitional substrate" does not preclude an intermediate layer (such as an alignment layer) from existing between the transitional substrate and the applied retardation layer. Accordingly, Saynor discloses all the limitations of claim 1.

In fact, to interpret the limitation as precluding such an intermediate layer would contradict the way the limitation was used in the originally presented claims and how the limitation has been interpreted thus far. Originally presented claim 1 contains the phrase "applying a first orientation layer to said transitional substrate". Originally presented claim 5 contains the phrase "wherein a retardation layer is applied to said transitional substrate prior to application of said orientation layer". Therefore, for dependent claim 5 to properly further limit independent claim 1, the limitation "applying a first orientation layer to said transitional substrate" could not preclude an intermediate layer from existing between the first orientation layer and the transitional substrate.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael H. Caley
May 26, 2005
mhc

TARIFUR R. CHOWDHURY
PRIMARY EXAMINER